

Serial No. 10/537,237

Atty. Doc. No. 2002P19841WOUS

Amendments To The Claims:

Please amend the claims as shown.

1 – 12 (canceled)

13. (currently amended) A turbine shaft oriented in an axial direction, comprising:
a first flow region;

a second flow region that adjoins the first flow region in an axial direction;

a first material in the first flow region; and

a second material in the second flow region, the second material joined to the first material through at least one weld joint.

wherein the first material comprises a heat-resistant steel having undergone a tempering process and the second material comprises a steel which is tough at low temperatures and

wherein the first material is characterized by a low stability during the tempering process relative to 1 CrMoV steel.

14. (previously presented) The turbine shaft as claimed in claim 13, wherein the first material comprises a 2 CrMoNiWV steel and the second material comprises a 3.5 NiCrMoV steel.

15. (previously presented) The turbine shaft as claimed in claim 13, wherein the first material includes

0.20 - 0.24% by weight of C, \leq 0.20% by weight of Si, 0.60 - 0.80% by weight of Mn, \leq 0.010% by weight of P, \leq 0.007% by weight of S, 2.05 - 2.20% by weight of Cr, 0.80 - 0.90% by weight of Mo, 0.70 - 0.80% by weight of Ni, 0.25 - 0.35% by weight of V and 0.60 - 0.70% by weight of W and the second material includes 0.22 - 0.32% by weight of C, \leq 0.15% by weight of Si, 0.15 to 0.40% by weight of Mn, \leq 0.010% by weight of P, \leq 0.007% by weight of S, 1.20 - 1.80% by weight of Cr, 0.25 - 0.45% by weight of Mo, 3.40 - 4.00% by weight of Ni, 0.05 - 0.15% by weight of V.

16. (currently amended) The turbine shaft as claimed in claim 13, wherein a single structural weld seam (4) is arranged between the first material and the second material.

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17. (currently amended) The turbine shaft as claimed in claim 13, wherein the tempering process is characterized by a temperature between 600 C and 640 C thereby allowing characteristic hardness in a heat-affected zone of the first material to be reduced. ~~structural weld seam includes a weld filler.~~

18. (currently amended) The turbine shaft as claimed in claim ~~13~~17, wherein the tempering process is characterized by a temperature between 600 C and 640 C thereby allowing internal stress in a heat-affected zone of the first material to be reduced. ~~weld filler includes 2% by weight of nickel.~~

19. (currently amended) A process for producing a turbine shaft, comprising:
orienting a first material and a second material in an axial direction; and
directly joining the first and second materials to one another by a single structural weld.

20. (previously presented) The process as claimed in claim 19, wherein a 2 CrMoNiWV steel is used for the first material and a 3.5 NiCrMoV steel is used for the second material.

21. (previously presented) The process as claimed in claim 19, wherein 0.20 - 0.24% by weight of C, \leq 0.20% by weight of Si, 0.60 - 0.80% by weight of Mn, \leq 0.010% by weight of P, \leq 0.007% by weight of S, 2.05 - 2.20% by weight of Cr, 0.80 - 0.90% by weight of Mo, 0.70 - 0.80% by weight of Ni, 0.25 - 0.35% by weight of V and 0.60 - 0.70% by weight of W is used for the first material, and 0.22 - 0.32% by weight of C, \leq 0.15% by weight of Si, 0.15 - 0.40% by weight of Mn, \leq 0.010% by weight of P, \leq 0.007% by weight of S, 1.20 - 1.80% by weight of Cr, 0.25 - 0.45% by weight of Mo, 3.40 - 4.00% by weight of Ni, 0.05 - 0.15% by weight of V is used for the second material.

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22. (currently amended) The process as claimed in claim 19, wherein the first material comprises a heat-resistant steel having undergone a tempering process and the first material is characterized by a low stability during the tempering process relative to 1 CrMoV steel, a weld filler is fed to the structural weld.

23. (currently amended) The process as claimed in claim 22, wherein the tempering process is performed at a temperature between 600 C and 640 C, thereby allowing characteristic hardness in a heat-affected zone of the first material to be reduced. ~~weld filler used is a material that includes 2% by weight of nickel.~~

24. (currently amended) The process as claimed in claim 23~~19~~, wherein the tempering process reduces characteristic hardness in a heat-affected zone of the first material ~~is used to produce a rotor for use in a steam turbine.~~